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ITS 271.50K: Securing Desktops and Mobile Devices

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The University Of Montana – Missoula College
Department of Applied Computing and Electronics
Course Syllabus

ITS271 Securing Desktops and Mobile Devices

Credits: 4

Prerequisite Skills: Course builds upon established skills in security, server management and network management. Students should be working as a network manager or have completed appropriate skills-based coursework. The preliminary assessments offered the first week of the term will help gauge readiness for class. This assessment includes bridging review materials in preparation for coursework.

Last Updated: Spring 2016

Meetings:

This class is offered in an online-only format.

Faculty Contact:

Dianne Burke
Office Hours:

E-mail: dianne.burke@umontana.edu
1:00-2:00 p.m. Thursdays by appointment
AD-16A, Missoula College Campus
Phone and videoconferences by appt.

For those of you taking this class for credit, please use your official UM email address for correspondence. University policy prevents staff from responding to personal email accounts (Yahoo, Hotmail, etc.)

Those of you taking the class for continuing education or other not-for-credit status are free to use any email account for correspondence.

When emailing, make sure to send email to the account I listed above. I am also a student here at UM (working on a doctorate in Education Leadership), and occasionally students will send email to my student account. I don't monitor my student account daily, and I don't want to miss important messages. One way to make sure I receive the message is to use the Quickmail interface in the upper right corner of the Moodle shell.

Course Description, Objectives, and Required Materials

Course Description:

Course provides advanced technical information and relevant skills to successfully secure end-user devices, including desktop and laptop systems, tablets, cellular phones, and other portable computing equipment. Building on existing knowledge and skills in the areas of server management, network management, and security,

students will gain mastery-level knowledge of security issues and best practices. Course content covers client/server exposures and protections (authentication options, packet signing and encryption of network traffic, appropriate implementation of permissions and rights); malware threats and treatments; transmission choices and precautions (wired, wireless, remote desktop access, virtual private networking (VPN)); cloud computing considerations; and corporate mobile device best practices. Hardening of the operating system and application software is also covered. Course content will focus on business-focused security practices and delivery will include lecture, written material, and skills activities to prepare students for the Security+ and ISC² System Security Certification Practitioner (SSCP) certifications.

Course Structure:

Course is an intensive sequence that combines high-level computer knowledge and expertise with practical application of evaluative and preventative security techniques. During the session, students will combine instructor-directed learning activities with student-driven research and exploration. Students are expected to use existing research skills to augment lesson-specific information.

ITS 271 is part of a 4-class curriculum leading to a certificate in cybersecurity. Classes may be taken in any order and there are no dependencies between classes.

Course Objectives:

1. Students will describe and evaluate best practices in client/server security, including but not limited to authentication, transmission, operating system hardening, auditing, access control, and encryption.
2. Students will classify malware by threat type, method of introduction, and protection strategies.
3. Students will assess the strengths and weaknesses of cloud-based computing technologies, including public, private, and hybrid configurations.
4. Students will understand the advantages and exposures of current communication technologies, including wired, wireless, remote access, and protocol-level choices.
5. Students will examine security trends and vulnerabilities in mobile computing devices, and will develop best-practices toolkits for effective management of these devices.

Required Materials:

The TestOut Security Pro course is a required component of the class. In addition to augmenting lessons and exercises, the Security Pro class prepares the student for the

following industry certifications:

CompTIA Security+
ISC² System Security Certification Practitioner
TestOut Security Pro

One of the benefits of the TestOut course is low cost (approximately \$80), and the fact that materials continue to be available for a 2-year period after purchase. Those of you interested in obtaining industry certification will certainly benefit from using these study materials. Information on the TestOut course is available in the Course Information section of the Moodle shell.

TestOut Security Pro - English *English 5.0.5*

ISBN: 978-1-935080-44-2 | Expires on 1/15/2018

In addition, students will utilize Windows-based servers (Server 2008/2011/2012) and desktop systems (Windows 7/Windows 8) for many assignments. If these systems are not available through the workplace or students choose not to use existing lab facilities on the UM campus, virtual machines (for servers) or personal computers (desktops) may be used.

Students who need to build virtual machines for servers and/or desktops may use MSDNAA for appropriate software. Please see the course information topic in the Moodle shell for additional information.

Course Structure, Assessment, and Grading

Course Organization:

Unit 1 – Client/Server Security

Topics Covered:

Authentication
Packet Signing and Transmission
Update Management
Desktop Hardening
Access Control through privileges and permissions
Remote Access
Security Auditing
Drive and Packet-Level Encryption.

Unit 2 – Communications and Cloud Computing

Topics Covered:

Wired vs Wireless access
Encryption methods and effectiveness
Communication exploits and defenses
Types of Cloud Computing
Evaluation of risk and reward
Access Control in the Cloud
Cloud Computing Trends
Cloud Computing Protection Mechanisms.

Unit 3 – Malware

Topics Covered:

Classification of malware
Threat Types
Methods of Introduction
Risks and Exposures
Protection Options
Trends and Statistics
Best Practices
Removal Methods.

Unit 4 – Mobile Devices

Topics Covered:

Trends and Statistics in mobile device usage
Device and Data Security Considerations
BYOD Challenges
Treating mobile devices as computer resources
Device-specific tools to maintain security and confidentiality
Mobile Device Management Suites
Common exploits and protections
Key Vulnerabilities
User Training and policy considerations.

Course Schedule:

Students will usually complete 2 lessons per week. The course is relatively intensive. Historically, students spend 4-6 hours completing each lesson. Students receive 4 credits for successful completion.

Please stay on track with assignment due dates. If you fall behind it is difficult to catch up. Review the lessons and begin your work early in the week. You will not be successful if you start assignments the day they are due.

Evaluation Procedures:

Grades will be assessed as follows:

Assessment:	Weight:
Lesson Assignments	60%
Tests and Assessments	20%
Comprehensive Semester Project	20%

Grading Scale:	Letter Grade:
90-100%	A
80-89%	B
70-79%	C
60-69%	D

Discussion Forums:

For some assignments your work will be uploaded to a discussion forum. This is intentional and is a method to exchange information as well as learn from each other. Please read through all work submitted by your classmates and comment or ask questions appropriately.

Written Assignments:

Many assignments will be uploaded to the Moodle shell and will not be visible to the entire class. Length will vary but will often be 1-2 pages of written information. If you need additional space to fully explain a result or concept, please limit the additional narrative to 1 page.

Due Dates/Times:

Please use the Moodle calendar feature to keep track of due dates. You'll use Moodle Assignments and Moodle Forums to submit your work, and I've entered due dates for the entire semester on the course calendar.

There are options to sync the Moodle calendar with your smartphone or tablet as well as your student email calendar. Check the Course Information section of the shell for further information.

All materials are due on Sunday evening by 11:55 p.m. **Late work is not accepted.**

Additional Course Information

Naming and Submitting Assignments:

Save and name your documents using the following convention:

Lastname Firstname ITS271.51 Ax.y (where Ax.y is the assignment, such as A1.1, A2.3, etc.)

Students frequently contact me, explaining that they uploaded the wrong assignment or need to go back and correct something. If this happens, you can go into the Moodle shell and delete your submission, then upload the corrected version. This is available to you any time before the assignment deadline.

Professionalism:

All work performed in the course should be completed in a professional manner and be of business quality. Think of this semester as a dry run for your life in the business world. In addition to doing your 'job' correctly and on time, demonstrate professionalism through your attention to detail and in particular, through your efforts in all written communications. Use complete sentences, avoid slang and texting shorthand, and use proper grammar. Employers often ask for writing samples or give you a writing test as part of the application/interview process, so use your assignments as an opportunity to practice this skill.

Changes to Syllabi:

I reserve the right to modify syllabi and assignments as needed based on faculty, student, and/or environmental circumstances. If changes are made to the syllabus, amended copies will be dated and made available to the class. I will make every effort to limit any changes after the start of the semester.

Online Information:

As this is an online course, an Internet connection with reasonable (DSL) bandwidth is recommended. Some of the supplemental material is available in PDF directly from the Moodle shell, but much material is online at various websites. I check all links at the start of the semester but occasionally links will be broken. Please notify me via email if you encounter a broken or non-functioning link.

Class materials will generally be available on a per-unit basis a few weeks before any material are due. Expect lessons to consist of a mixture of reading material, review questions, discussion boards, audiocasts, webcasts, and research activities.

Technical support is available through <http://umonline.umt.edu> and by telephone at 406.243.4357 for the IT Central Help Desk and 406.243.6394 for Moodle-specific questions.

University Regulations

Academic Conduct:

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at: http://www.umd.edu/vpsa/policies/student_conduct.php.

Using the Web to research materials and concepts is an integral part of learning in the twenty-first century. Studying with other students is a productive method of learning. A certain amount of collaborating on concepts with other students and using resources found on the Internet in an assignment is recommended. However, copy and paste is not acceptable. It is expected that each student will input his/her assignment into the computer, and each student must be able to explain answers to any assignment turned in. In other words, *type or write your own work, even if you collaborate with others on homework*. Collaboration on exams is strictly forbidden.

Plagiarism:

Plagiarism will not be tolerated. If I suspect plagiarism, I will notify both the student(s) and the department chair as I investigate the situation. Assignments involving plagiarism will receive a 0.

That said, I encourage research from a variety of sources, including discussions with your classmates. Make sure as you complete your assignments that everything is in your own words. Please don't copy material from other students. For projects with an assigned partner you are permitted to turn in collaborative work.

Disability Accommodations Policy:

Students with documented disabilities will receive appropriate accommodations in this course when requested in a timely manner. Please be prepared to provide a letter from the DSS Coordinator and a description of the requested accommodation after class or by appointment with me. Please submit your requests early in the semester or even before the start of class. Accommodations will be available after we've discussed your request, but will not be available retroactively. I want each student to succeed, and putting accommodations in place as soon as possible helps make that happen.